

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

FACT SHEET

(pursuant to NAC 445A.236)

Permittee Name: Southern California Edison
Mohave Generating Station
P.O. Box 29505
Laughlin, NV 89028

Permit Number: NEV30007

Facility Location: Mohave Generating Station,
655 Bruce Woodbury Way
Laughlin, NV 89028

Township 32 South, Range 66 East, Sections 22 & 26
Latitude: 35° 8' 00" N
Longitude: 114° 35' 00" W

General:

The Mohave Generating Station is a coal-fired power plant. The coal arrives at the site as a slurry of fifty percent (50%) crushed coal and fifty percent (50%) water, via pipeline from Arizona. At the plant, the coal is separated from the water using high-speed centrifuges and clarifiers known as “clariflocculators”. The coal is used to fire the boilers, and the water is used in the plant’s cooling process. The plant must also obtain additional water from the nearby Colorado River for cooling purposes. Seven cooling towers serve two 790-megawatt power generating units and are designed to cool the water so that it can be recycled through the main condensers.

As the water is recycled and passes through the cooling process, evaporation losses result in high mineral concentrations in the remaining water. Due to repeated re-use, the mineral concentrations eventually become too high for the water to be used in the plant. This water is disposed of by evaporation in lined wastewater evaporation ponds. Other structures on the site that contain coal, process water, and process wastewater of various types that are included in the permit are the coal fines storage pond, reuse water storage ponds, plant drain storage ponds, the ash/coal fines drying pond and the cooling canal. These structures are all hereafter collectively referred to as “systems”. A description of each system and the wastes they contain is listed in Table A.

The facility permit also includes a small package treatment plant that processes domestic wastewater from the facility, and discharges the secondary-treated effluent to a lined evaporation pond. Effluent and flow limitations are summarized in a table included herein.

No discharges of pollutants are permitted from the above-described systems to either surface or groundwaters of the State.

Table A.
List of Southern California Edison Mohave Generating Plant Water Systems

SYSTEM	CONTENTS	PONDS	CAPACITY (gallons)
Coal Fines Storage Pond System	Coal fines of no value to the Facility	Pond No. 5 (currently not in use due to liner damage)	202 million
Reuse Water Storage Pond System	Reusable Wastewater	Sweetwater Pond Pond No. 2	14 million 77 million
Wastewater Evaporation Pond System	Poor quality wastewater	Pond No. 3 Pond No 4A Pond No 4B Pond No 6A Pond No 6B Pond No 6C	144 million 175 million 175 million 74 million 68 million 68 million
Plant Drain Storage Pond System	Plant site drainage, coal fines, and fly ash	North Peripheral Drain South Peripheral Drain	2.6 million 2.6 million
Ash and Coal Fines Drying Pond System	Fly ash and coal fines waste solids from Plant Drain Storage Pond System	Ash and Coal Fines Drying Pond	6 million
Cooling System	Transferred cooling water for reuse	Cooling Tower Basin Cooling Canal	3.9 million 4.2 million
Ash Canyon Catch Basin	All plant site drainage outside of the power block that travels over the fly ash disposal area	Ash Canyon Dam	70 million
Coal Storage Pond System	Coal/Water Slurry	Marcona Ponds 1 through 8	22.7 million per pond, 181.6 million, total

One or more leak detection method(s) are in place for most facility systems. These include geophysical survey equipment, visual sump inspections, visual liner inspections and monitoring wells. Part I.A.1.a. of the permit indicates the required leak detection type and monitoring frequency for the various systems. With proper leak detection methods, it is anticipated that any leaks which may occur will be detected and the system will be repaired before significant negative environmental impact were to occur.

The permittee is also required by the permit to continue with remediation efforts for high mineral content groundwater contamination that occurred as a result of leaking ponds prior to the original

permit issuance. The approved remediation program goal includes restoration of the groundwater quality below the entire site to electrical conductance levels at or below one thousand (1,000) micro-siemens. The program consists of three major phases each lasting five (5) years. The first phase of remediation spanned the years 1992 to 1996, and the goal was to remove thirty-three percent (33%) of the total solute mass as evidenced by the electrical conductance measurements. In 56% of the highlighted wells, the first phase goals were met. The second phase of the remediation project spanned the years of 1997 through 2001, and required sixty-six percent (66%) removal of the total original solute mass. During the second five-year period, 31% of the 42 wells highlighted achieved at least 66% solute removal. An additional 29% of the wells achieved between 33% and 66% of solute removal. The final phase of the program will require 100 % compliance for all wells. The renewed permit requires submittal of the Phase III Remediation Report on or before July 28, 2007.

Receiving Water Characteristics:

This is a “zero discharge” permit; discharges of pollutants from the systems to groundwaters or surface waters of the State are not permitted. The waters below the site have been impacted by pre-regulation leakage of highly mineralized process water from the various impoundment structures. Due to the extensive groundwater remediation program, the groundwater quality at the site is very well characterized. Data from the 60+ monitoring wells indicate the following average groundwater quality below the site. Any changes in the groundwater aquifer would be detected as part of the remediation program.

PARAMETER	AVERAGE	MAXIMUM VALUE	MINIMUM VALUE
pH (Standard Units)	7.6	9.2	7.2
Electrical Conductivity (µmho/cm)	1465	4700	700
Calcium (mg/l)	114	510	29
Magnesium (mg/l)	34	150	10
Sodium (mg/l)	148	570	64
Bicarbonate Alkalinity (mg/l)	127	250	10
Sulfate (mg/l)	320	1500	17
Chloride (mg/l)	201	1100	46
Nitrate (mg/l)	6.9	32	0.2
Total Dissolved Solids (mg/l)	1067	4100	420

Flow:

There is no flow limitation on the systems at this facility, with the exception of the package sewage treatment plant. The flow to the package treatment plant is limited to the design capacity of 36,000 gallons per day.

The total volume pumped from each groundwater remediation well must be reported to the State Engineer's Office under an Environmental Water Rights Permit for each well or set of wells. At the time of preparation of this fact sheet, the permittee is holding Environmental Water Rights Permit numbers 53750 through 53752, 58076E through 58086E, 66550E through 66552E, and 71121E.

Limitations:

The permittee will be required to monitor the fluids contained in all systems on an annual basis for pH, electrical conductivity, calcium, magnesium, sodium, potassium, bicarbonate, sulfate, chloride, nitrate, total dissolved solids and copper (Part I.A.1.b.). The remediation wells, approximately 60, shall also be monitored and reported for the same constituents according to the schedule included in Part I.A.2.a through d. Leak detection surveys shall be performed and reported at the intervals specified in Parts I.A.1.a of the permit. A report of the quantities by type of any solid waste material removed from any system described in the permit shall also be submitted annually (Part II.A.5.).

The package treatment plant effluent limitations and monitoring conditions are summarized below. Samples shall be collected after final treatment and prior to discharge to the evaporation pond.

Package Wastewater Treatment Plant Effluent Limitations

<u>PARAMETER</u>	<u>DISCHARGE LIMITATIONS</u>		<u>MONITORING REQUIREMENTS</u>	
	Quarterly Average	Quarterly Maximum	Measurement Frequency	Sample Type
Flow	0.036 MGD	0.036 MGD	Continuous	Meter
BOD ₅	30 mg/l	45 mg/l	Quarterly	Discrete
TSS	30 mg/l	45 mg/l	Quarterly	Discrete
pH	6.0 to 9.0 Standard Units		Quarterly	Discrete

Schedule of Compliance:

- The permittee shall achieve compliance upon issuance of the permit.
- The approved remediation program goal includes restoration of the groundwater quality below the entire site to electrical conductance levels at or below one thousand (1000) micro-siemens. The program consists of three major phases each lasting five (5) years. The second phase remediation goal for the years 1997 to 2001 is to remove sixty-six percent (66%) of the total original solute mass as evidenced by electrical conductance measurements. The third phase remediation goal for the years 2002 to 2006 is to remove the remaining third of the total original contaminants, resulting in one hundred percent (100%) removal of the total original

solute mass as evidenced by electrical conductance measurements. The final evaluation report shall be submitted under this permit renewal, and shall be due on **July 28, 2007**.

- c. **By March 31, 2005**, a revised operation and maintenance manual shall be submitted to the Division for review and approval. The manual shall include all the systems described in the permit, including a revised well map. Within fourteen days of receiving the Division's comments, if any, the manual shall be finalized and submitted to the Division.
- d. Prior to placing Pond No. 5 back into service, the permittee shall submit a Plan of Action to the Division for approval. The Plan shall be submitted a minimum of 180 days prior to the anticipated construction start date. The Plan shall include a description of the recommended liner improvements, leak detection system(s), a characterization of the type of waste to be contained, design drawings and specifications. This documentation must be approved by the Division prior to construction.

Procedures for Public Comment:

The Notice of the Division's intent to issue a permit authorizing the facility to discharge to the groundwater of the State of Nevada subject to the conditions contained within the permit, is being sent to the **Las Vegas Review-Journal** and the **Laughlin Nevada Times** for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit may do so in writing for a period of 30 days following the date of the public notice.

All comments regarding this permit must be received or postmarked by **5:00 PM on January 28, 2005**. The comment period can be extended at the discretion of the Administrator.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator or any interested agency, person or group of persons.

The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determined to be appropriate. All public hearings must be conducted to accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Rationale for Permit Requirements:

Leak detection surveys are required to prevent any further groundwater contamination from occurring and to prevent hindering the ongoing remediation program. Remediation wells are to be monitored to determine the effectiveness of the remediation program, to support the results of the leak detection methods and to prove the competency of the system liners. Any substances removed from the storage or disposal systems shall be monitored to prevent any pollutant from entering any waters.

Package wastewater treatment plant limits and monitoring requirements are included to demonstrate compliance with secondary treatment standards, to assess the functionality of the system, and to determine when design capacity is being approached.

Copper analysis is deemed prudent since the power plant uses a commercial micro-biocide to control growth of organisms in the cooling towers. One of the ingredients in the micro-biocide is Cupric Nitrate.

Determination:

The Division has made the determination to renew the permit, as proposed, for a five (5) year period.

Prepared by: Janine O. Hartley
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Bureau of Water Pollution Control
December 2004